WHAT IS CLAIMED IS:

1. A rear projection screen comprising a plurality of glass microspheres in optical contact with a substrate and embedded in an opaque matrix; wherein the glass microspheres:

have an index of refraction of no greater than about 1.70;

comprise, on a theoretical oxide basis based on the amount of starting materials:

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof;

no greater than about 40 wt-% SiO_2; and

no less than about 10 wt-% TiO_2; and

as produced have less than about 15% defects in a population.

2. The rear projection screen of claim 1 wherein the glass microspheres comprise, on a theoretical oxide basis based on starting materials:

no greater than about 40 wt-% SiO_2;

no less than about 10 wt-% TiO_2;

no less than about 5 wt-% B_2O_3;

no less than about 20 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof.

3. The rear projection screen of claim 1 wherein the glass microspheres comprise, on a theoretical oxide basis based on starting materials:

no greater than about 31 wt-% SiO_2;

no less than about 15 wt-% TiO_2;

no less than about 10 wt-% B_2O_3;

no less than about 25 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

no less than about 10 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof

4. The rear projection screen of claim 1 wherein the microspheres have an index of refraction of about 1.60 to about 1.70.

5. The rear projection screen of claim 1 wherein the microspheres comprise Li_2O.

6. The rear projection screen of claim 5 wherein the microspheres comprise , on a theoretical oxide basis based on starting materials, at least about 0.25 wt-% Li_2O.

7. The rear projection screen of claim 1 wherein the microspheres are prepared from a composition that melts below a temperature of about 1350°C.

8. The rear projection screen of claim 1 wherein the microspheres are coated with a flow control agent.

9. A rear projection screen comprising a plurality of glass microspheres in optical contact with a substrate and embedded in an opaque matrix; wherein the glass microspheres:

have an index of refraction of no greater than about 1.70;

comprise, on a theoretical oxide basis based on the amount of starting materials:

no greater than about 40 wt-% SiO_2;

no less than about 10 wt-% TiO_2;

no less than about 5 wt-% B_2O_3;

no less than about 20 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof.

10. A film comprising a plurality of glass microspheres disposed on a substrate and embedded in an opaque matrix; wherein the glass microspheres:

have an index of refraction of no greater than about 1.70;

comprise, on a theoretical oxide basis based on the amount of starting materials:

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof, with the proviso that Li_2O is present;

no greater than about 40 wt-% SiO_2; and

no less than about 10 wt-% TiO_2; and

as produced have less than about 15% defects in a population.

11. A glass microsphere comprising, on a theoretical oxide basis, based on starting materials:

no greater than about 40 wt-% SiO_2;

no less than about 10 wt-% TiO_2;

no less than about 5 wt-% B_2O_3;

no less than about 20 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof, with the proviso that Li_2O is present.

12. The glass microsphere of claim 11 comprising:

no greater than about 31 wt-% SiO_2;

no less than about 15 wt-% TiO_2;

no less than about 10 wt-% B_2O_3;

no less than about 25 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

no less than about 10 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof.

13. The microsphere of claim 11 which has a diameter of less than about 150 micrometers.

14. The glass microsphere of claim 11 which has an index of refraction of about 1.60 to about 1.70.

15. The glass microsphere of claim 11 comprising, on a theoretical oxide basis based on starting materials, at least about 0.25 wt-% Li_2O.

16. The glass microsphere of claim 11 which is prepared from a composition that melts below a temperature of about 1350°C.

17. The glass microsphere of claim 11 further comprising a coating comprising a flow control agent.

18. A noncalcium-containing glass microsphere comprising, on a theoretical oxide basis, based on starting materials:

no greater than about 40 wt-% SiO_2;

no less than about 10 wt-% TiO_2;

no less than about 5 wt-% B_2O_3;

no less than about 20 wt-% of an alkaline earth modifier selected from the group of BaO, SrO, and mixtures thereof; and

greater than about 5 wt-% of an alkali metal oxide selected from the group of Na_2O, K_2O, Li_2O, and mixtures thereof.

19. A method of making a film for use in a rear projection screen, the method comprising:

providing a substrate having an opaque matrix disposed thereon; and

applying glass microspheres from a rolling bank of microspheres onto the opaque matrix under conditions effective to produce microspheres in optical contact with the substrate and embedded in the opaque matrix.

20. The method of claim 19 wherein applying glass microspheres from a rolling bank comprises:

contacting the opaque matrix on the substrate with sufficient glass microspheres to form multiple layers of glass microspheres between the substrate and a pack roll;

pressing the glass microspheres into the opaque matrix on the substrate to form a monolayer of embedded microspheres, wherein the apex of a majority of the microspheres are in direct contact with the substrate underlying the opaque matrix.

add A4